Carl Sandburg Home National Historic Site
Water Quality Summary Fiscal Year 2009

Water quality at Carl Sandburg Home National Historic Site remains good

Side Lake, September 10, 2009. Image by Shepard McAninch.

Highlights of Fiscal Year 2009 Monitoring

Water quality at Carl Sandburg National Historic Site (CARL) during fiscal year 2009 (October 2008 through September 2009) was no different than elsewhere throughout the lower Blue Ridge and Piedmont – showing signs of a prolonged regional drought. Many streams were reduced to trickles thus effecting flow-dependent parameters such as dissolved oxygen (DO). For example, in July, the DO at Mountain Reservoir was 3.46 milligrams per liter (mg/l) which is below the minimum standard of 4.0 mg/l. Flow by this time was reduced to a paltry 2 liters per minute. Low flow and hot weather also caused water temperature to exceed the 29° Celsius (C) maximum at Front Lake (32.9°C). These should be considered natural and temporary conditions.

Other apparent violations caused by natural conditions regard pH values falling below the state's lower pH threshold of 6.0 Standard Units (SU). Due to the lack of carbonate minerals CARL waters have a very low acid neutralizing capacity (ANC). Thus the naturally low-pH waters of the park remain low. This is most obvious at Trout Spring and Mountain Reservoir, where values are typically between 4.0 and 5.5 SU, below the lower pH limit of 6.0 SU.

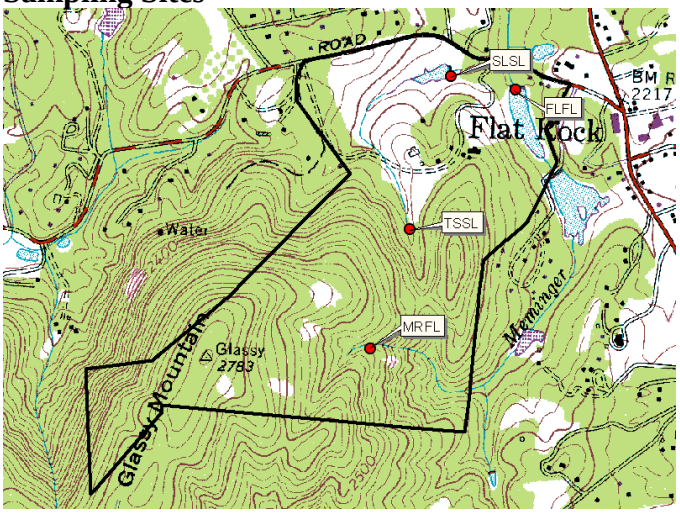
Escherichia coli also exceeded USEPA guidelines of 576 Most Probable Number per 100 ml (MPN/100ml) at the normally "clean" Trout Spring during the May sampling event (980.4 MPN/100ml). This value appears to be an outlier, perhaps as the sample was taken from the adjacent stream rather than the typical holding tank site. In any case, the nearly 5 centimeters of rain that preceded the sampling event may have contributed local runoff to the water body. Bacteria levels were also high in May at Side Lake – perhaps due to contributions from the upstream Trout Spring and receiving runoff from the pastures within the watershed.

Water Quality Standards

All CARL waters are considered "North Carolina High Quality Waters, WS II and WS IV", a combination that gives CARL the highest standards under the Clean Water Act as promulgated by the state of North Carolina. The state currently does not impose a standard for *Escherichia coli* bacteria so we have adapted the USEPA recommendations for "Single Sample Infrequently Used Full Contact Recreation." We use the most tolerant of federal recommendations reflecting the lack of recreational use of CARL waters, 576 MPN/100ml. Other monitored parameters, ANC and Specific Conductance (SpC), are without state standards or federal guidelines. These parameters are useful in interpreting water quality.

Water Temperature	Not to exceed 29°C
Dissolved Oxygen	Not to deceed 4.0 mg/l
pH	Between 6.0 and 9.0 SU
Escherichia coli	Not to exceed 576 MPN/100ml
SpC	No Standard
ANC	No Standard

Sampling Sites



SLSL	Side Lake at dam
FLFL	Front Lake at dam
TSTS	Trout Spring
MRFL	Mountain Reservoir

Future Monitoring

Water quality sampling is scheduled to resume in fiscal year 2011.

Water quality data are available upon request to the Cumberland Piedmont Network or our website:
http://science.nature.nps.gov/im/units/cupn/reports.cfm